



SNS COLLEGE OF TECHNOLOGY
(An Autonomous Institution)
COIMBATORE- 641 035



Department of Computer Science and Engineering
19CSE314 Open Source Software

UNIT IV PROGRAMMING TOOLS AND TECHNIQUES

1. What is version control in the context of open-source software?

Version control is a system that records changes to a file or set of files over time, allowing developers to track modifications, collaborate efficiently, and revert to previous versions of the code. Git is a popular version control system in open-source development.

2. What is Git?

Git is a distributed version control system that allows multiple developers to collaborate on a project by managing and tracking changes to the source code efficiently. It is widely used in open-source projects.

3. What is GitHub used for in open-source development?

GitHub is a platform that hosts Git repositories, allowing developers to collaborate, contribute, and manage open-source projects. It provides features like pull requests, issue tracking, and project documentation.

4. What is a "commit" in version control?

A "commit" is an action in version control systems like Git that records changes made to the codebase. It creates a snapshot of the changes, which can be reverted or compared later.

5. What is a "pull request" in GitHub?

A pull request is a method by which a developer proposes changes to a repository. Other contributors can review the code, discuss it, and, if approved, merge it into the main codebase.

6. What is a "fork" in the context of GitHub?

A "fork" is a copy of a repository that allows developers to make changes to the project independently. It is typically used to propose changes or to experiment without affecting the original project.

7. What is Continuous Integration (CI) in open-source software development?

Continuous Integration (CI) is a development practice where code changes are automatically tested and integrated into the shared repository multiple times a day. It helps detect bugs early and ensures that the software always builds and works as expected.

8. What is a "build tool" in programming?

A build tool automates the process of compiling, linking, and packaging source code into executable programs or libraries. Examples include Apache Maven, Gradle, and Make.

9. What is a "code editor" used for in open-source development?

A code editor is a software application used to write and edit code. Examples of open-source code editors include Visual Studio Code, Atom, and Sublime Text.

10. What is "debugging" in the context of programming?

Debugging is the process of identifying, analyzing, and fixing errors or bugs in a program. It involves tools like debuggers to step through code and inspect the program's behavior during execution.

11. What is a "package manager" in programming?

A package manager is a tool that automates the process of installing, upgrading, configuring, and removing software packages or dependencies. Examples include npm (for JavaScript), pip (for Python), and apt (for Linux).

12. What is the role of a "compiler" in programming?

A compiler is a tool that translates high-level source code into machine code or an intermediate language that can be executed by a computer. It is essential for turning source code into an executable program.

13. What is "open-source testing" in software development?

Open-source testing refers to the use of open-source tools and frameworks to test software applications. Examples include Selenium (for web applications) and JUnit (for Java testing).

14. What is the purpose of "automated testing" in open-source projects?

Automated testing helps ensure that software works correctly by running tests automatically whenever changes are made to the codebase. This reduces human error and speeds up the testing process.

15. What is "Code Coverage" in the context of automated testing?

Code coverage is a metric that measures the percentage of code executed during automated tests. Higher code coverage generally indicates better test coverage, reducing the likelihood of undetected bugs.

16. What is "dependency management" in open-source software development?

Dependency management is the process of managing external libraries or tools that a project relies on. Tools like npm (JavaScript) or Maven (Java) help track and manage dependencies to ensure compatibility and avoid conflicts.

17. What are "unit tests" in programming?

Unit tests are tests that verify the functionality of small, isolated units of code, typically individual functions or methods. Unit tests help ensure that each part of the program works as intended.

18. What is "pair programming" in software development?

Pair programming is a technique where two developers work together at the same computer. One writes the code (the driver), while the other reviews and suggests improvements (the observer). It promotes collaboration and knowledge sharing.

19. What is "static analysis" in programming?

Static analysis is the process of analyzing code for potential errors, vulnerabilities, and code quality issues without executing it. Tools like Sonar Qube help identify problems before runtime.

20. What is "refactoring" in software development?

Refactoring is the process of restructuring existing code without changing its external behavior. The goal is to improve the code's readability, maintainability, and performance.